Kolloidnyj Zhurnal 1998 vol.60 N1, pages 55-62

Kinetics of the growth of silver halide microcrystals in metastable water - gelatin solutions in the presence of d-element complexes with 1,2-ethylenediamine, 2,2'-dipyridyl, and 1,10-phenanthroline

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Abstract

The effect of coordination compounds of V(III), Cr(III), Mn(II), Fe(II), Fe(III), Co(II), Ni(II), Cu(II), Pd(II), and Rh(III) with 1,2-ethylenediamine, 2,2'-dipyridyl, and 1,10-phenanthroline on the formation of microcrystals of silver halides in the metastable water - gelatin systems was established. It was noted that the degree of the retardation of the growth of AgHal microcrystals in such systems passes a maximum as the concentration of 1,2-etylenediamine complexes increases, whereas, in the case of 2,2'-dipyridyl and 1,10-phenanthroline complexes, it decreases monotonically. It was also shown that, in the presence of these complexes in such systems, the rate of AgHal microcrystal growth always depends substantially on the pH of the water - gelatin phase.